Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class Period \_\_\_\_\_\_

Tiling a Garden Patio

Miguel Martinez is designing garden patios. Each patio has a rectangular garden area in the center. Miguel uses black tiles to represent the soil of the garden. Around each garden, he designs a border of white tiles. The pictures shown below show the three smallest patios that he can design with black tiles for the garden and white tiles for the border.

**Patio 3**

**Patio 2**

**Patio 1**

1. **PICTURE** Draw Patio 4 and Patio 5.

2. **VERBAL DESCRIPTION** Describe a method for finding the total number of white tiles

needed for patio 50 (without drawing the patio.) Use the pictures of the patio to help

explain your method.

3. **EQUATION** Let represent the patio number and let represent the number of while

tiles. Write a function rule that gives the number of white tiles as a function of the patio

number.

4. **TABLE** Make a table. 5. **GRAPH** Make a graph. Label the axes.

Place a scale on each axis.

6. Explain the meaning of the ordered pair in the context of the garden-patio

function.

7. Notice that the number of black tiles representing the garden area is the same as the patio

number. Every time one black time is added to the garden area, the number of white tiles

increase by 2. Use a pink highlighter or colored pencil to show this rate of increase in the

picture, the verbal description, the equation, the table and the graph.

8. Suppose that Miguel decided to make a patio without a garden area in the center.

How many white tiles would such a patio have? Use a yellow highlighter or colored pencil

to show this number on each representation of the garden-patio function.